

Expanding the Traditional Effectiveness Window

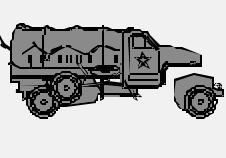
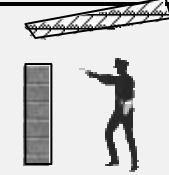
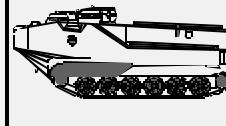
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Report Documentation Page		
Report Date 09Apr2001	Report Type N/A	Dates Covered (from... to) - -
Title and Subtitle Expanding the Traditional Effectiveness Window		Contract Number
		Grant Number
		Program Element Number
Author(s) Hasslid, Jan		Project Number
		Task Number
		Work Unit Number
Performing Organization Name(s) and Address(es) NAMM		Performing Organization Report Number
Sponsoring/Monitoring Agency Name(s) and Address(es) NDIA (National Defense Industrial Association) 211 Wilson Blvd, STE. 400 Arlington, VA 22201-3061		Sponsor/Monitor's Acronym(s)
		Sponsor/Monitor's Report Number(s)
Distribution/Availability Statement Approved for public release, distribution unlimited		
Supplementary Notes Proceedings from the 36th Annual Gun & Ammunition Symposium & Exhibition 9-12 April 2001 Sponsored by NDIA		
Abstract		
Subject Terms		
Report Classification unclassified		Classification of this page unclassified
Classification of Abstract unclassified		Limitation of Abstract UU
Number of Pages 24		

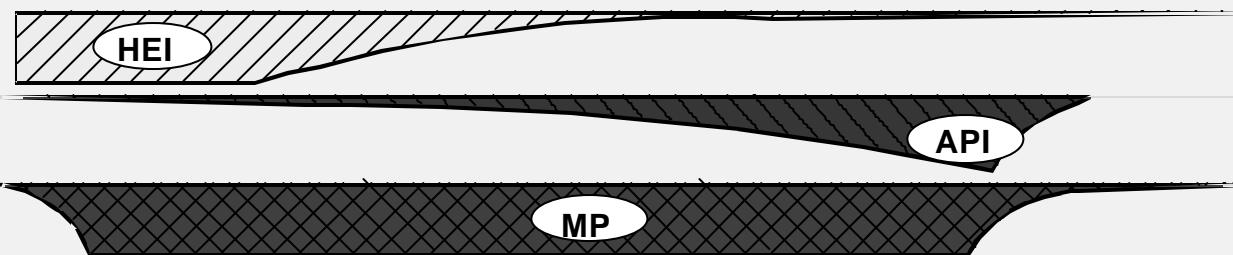
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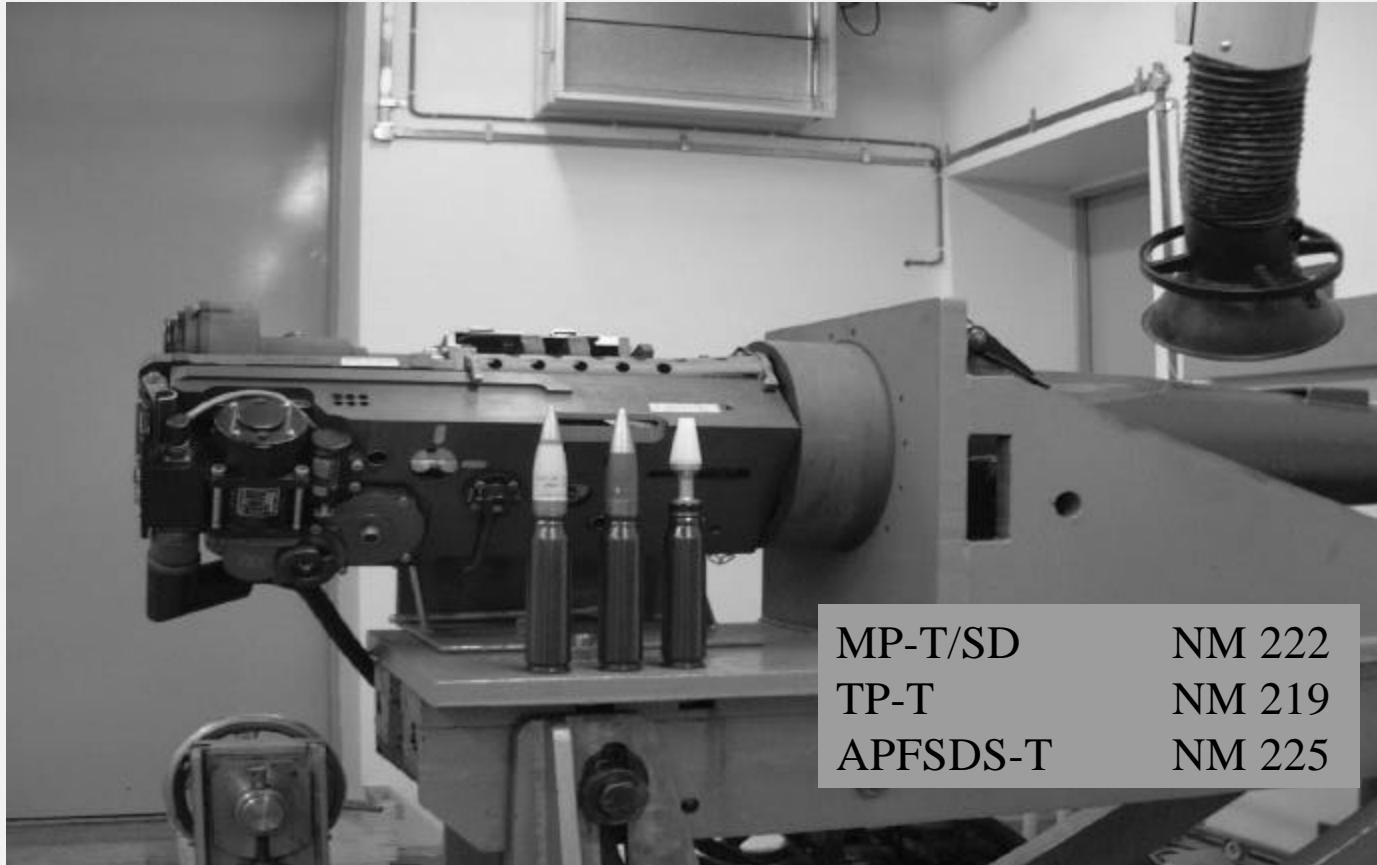
TARGETS:

				
UNPROTECTED PERSONNEL	UNPROTECTED VEHICLES	LIGHT FORTIFICATIONS	LIGHT ARMORED VEHICLES	HEAVY ARMORED VEHICLES
				
LIGHT NAVY APPL.		HEAVY NAVY APPLICATIONS		
				
HELICOPTERS		FIGHTER AIRCRAFT	FIGHTER BOMBER/TRANSPORT AIRCRAFT	

SHELL TYPES:



*30x173 Family of Ammunition qualified
with the Bushmaster II mod 0 & mod 1*



MEDIUM CALIBRE

Symposium Straume/Hasslid

AAAV TGT Matrix

	<u>Light</u>	<u>Medium</u>	<u>Heavy</u>
• <i>Infantry</i>		<i>BTR/Urban</i>	<i>BMP</i>
• <i>HEI</i>	-----*		
• <i>MPLD</i>	*	-----*	
• <i>APFSDS</i>			*
• <i>ABM</i>	*----- -?????		

- ***Expanding the Effectiveness Window***
- ***MRP-T***
- ***ABMP-T****

Pushmaster II- Traditional Long Rod Rock Penetration



M E D I U M C A L I B R E

Symposium Straume/Hasslid

Bushmaster II-Optimized Long Rod Granite Rock Penetration with an APFSDS-T

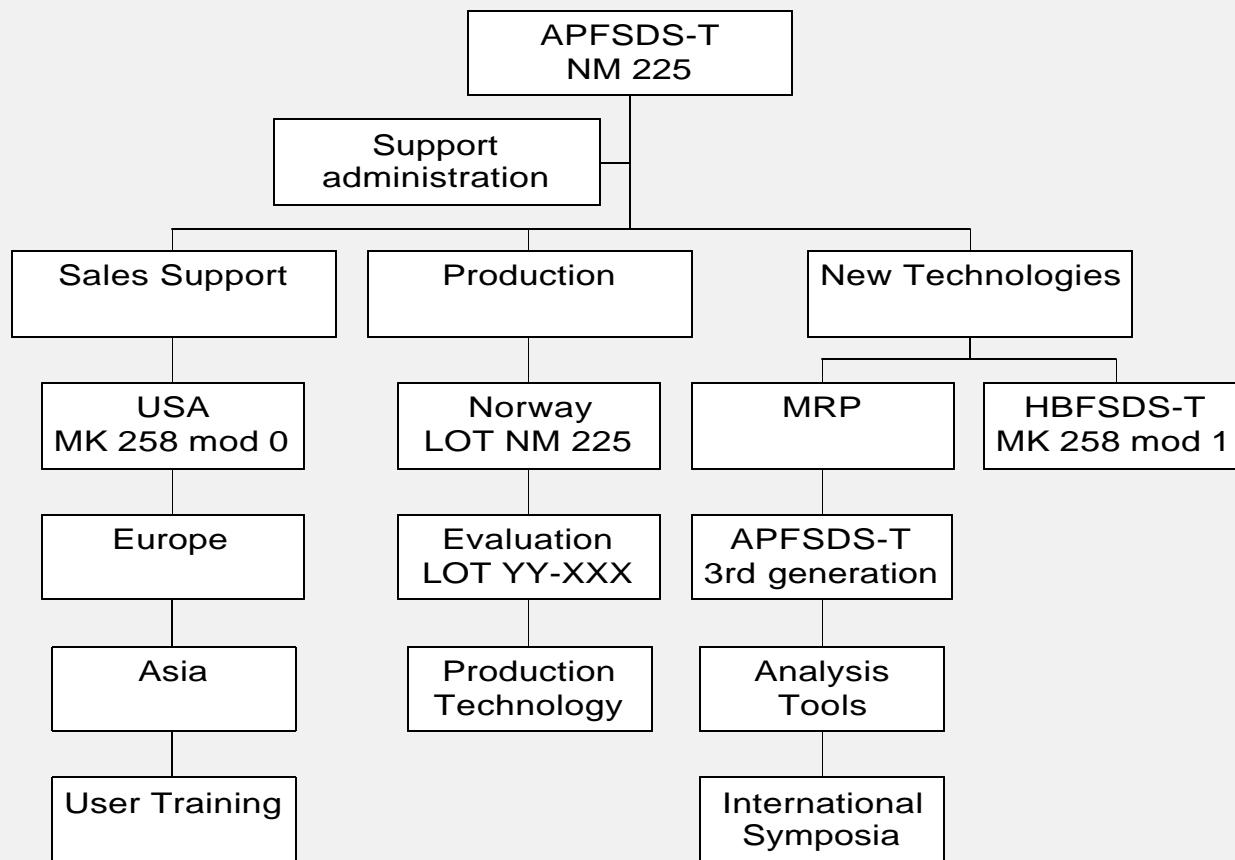
- SECONDARY EFFECTS
- Severe structural damage
- Lethal fragments scattered
- Dust cloud & Reduced Visibility



MEDIUM CALIBRE

Symposium Straume/Hasslid

30x173 APFSDS-T
Organization of activities 2001



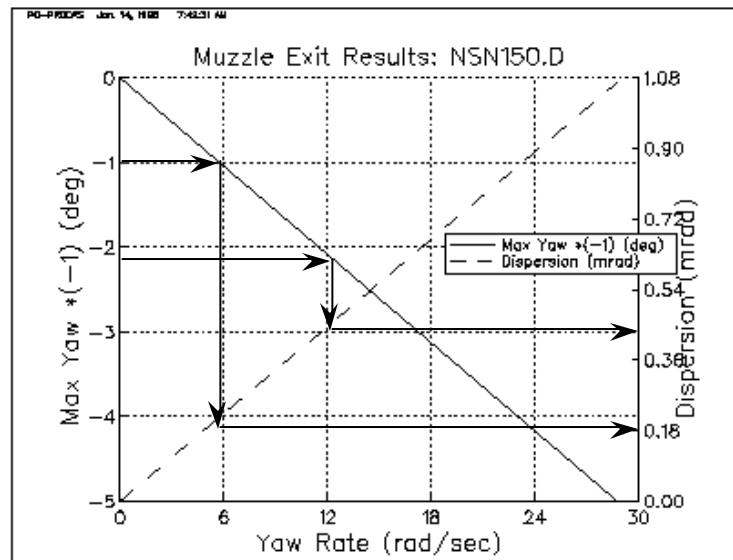
Supplier Selection Criteria for the User

Modern Ammunition	<i>IM Performance</i>	<i>NATO standardized Ammunition family</i>	<i>Fits the engagement scenario for MOUT</i>
New Technologies Integration	<i>EI Propellant</i>	<i>Hydrocode analysis for maximum performance</i>	<i>CFD-analysis for superior exterior dynamics</i>
A Heritage and commitment for the future in medium caliber	<i>The Multipurpose Concept</i>	<i>In service ammunition with Air Force, Navy & Army</i>	<i>Integrated Process & Production Development</i>
Competetive in cost for performance	<i>30mm stored kills outperform 35 & 40mm</i>	<i>Low Lifecycle Cost</i>	<i>All current target scenarios defeated</i>

Optimization

Approach!

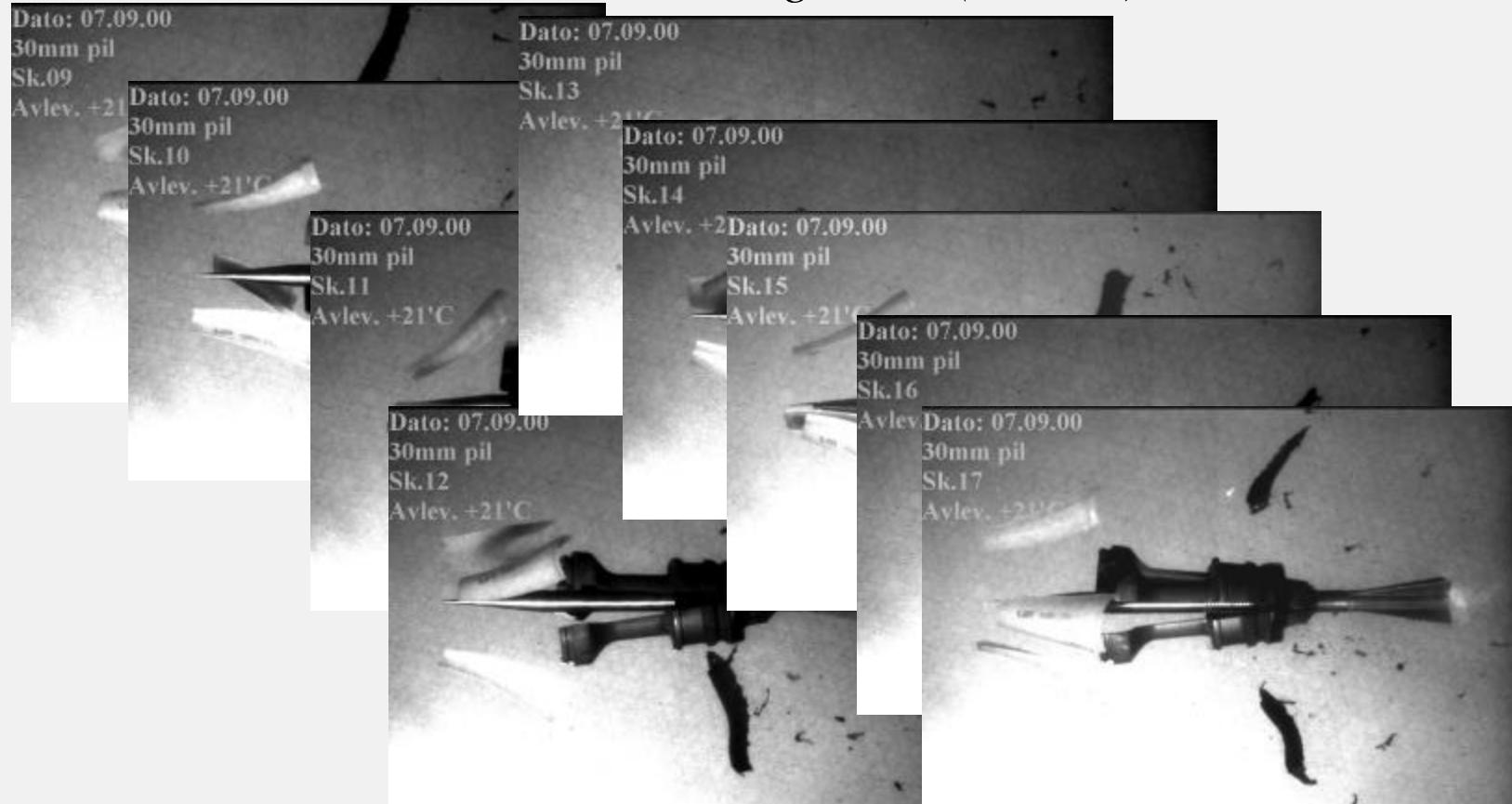
Dispersion due to Initial Yaw-Condition



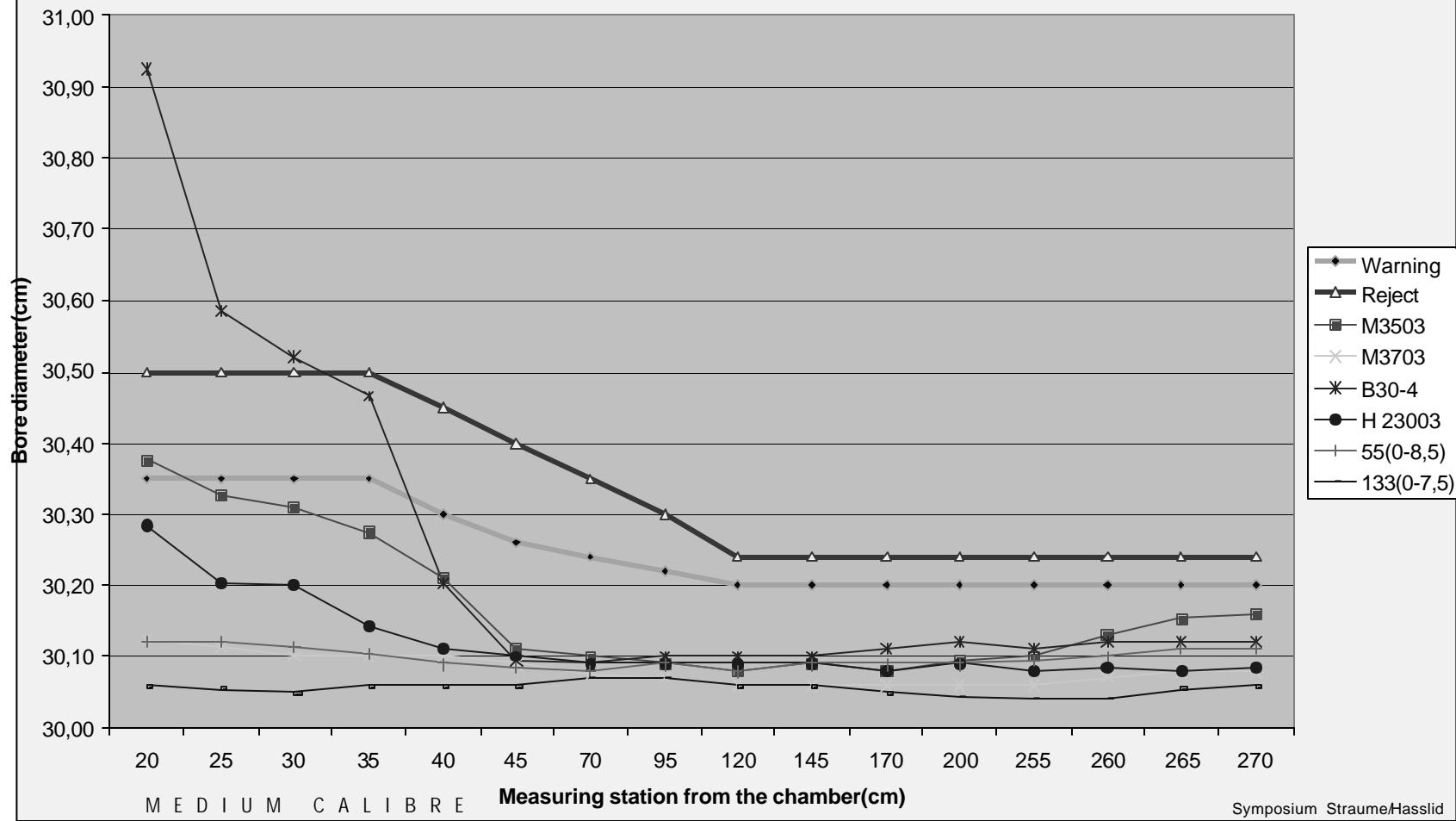
Muzzle Velocity = 1410.(m/sec) Mach Number = 4.142

<CR> to Continue
F1 for Plot Menu

Objective #1
Bushmaster II integration (0'-8,5')



Barrel Interface Study
30x173 Barrel Interface Study



DISPERSION RESULTS

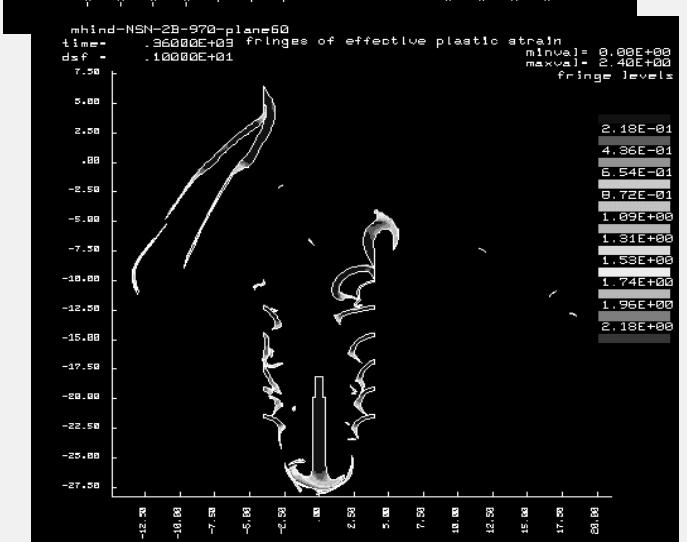
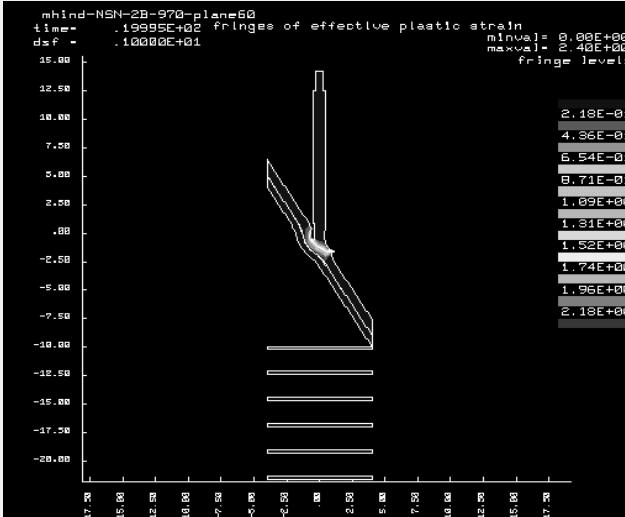
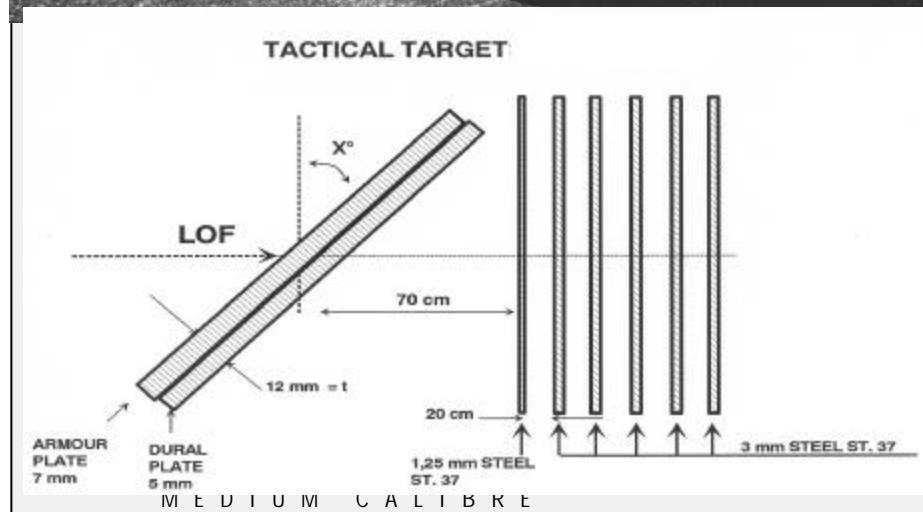
Barrel	Dispersion (1SD)	
	Sx (mils)	Sy (mils)
Mauser Mann	0,15	0,15
Bush II Mann	0,20	0,20
Bush II Auto s.s.	0,35	0,35
Bush II Auto burst	0,45	0,45

Expanding the Traditional Effectiveness Window

APFSDS-T → MRP

Multi Role Penetrator

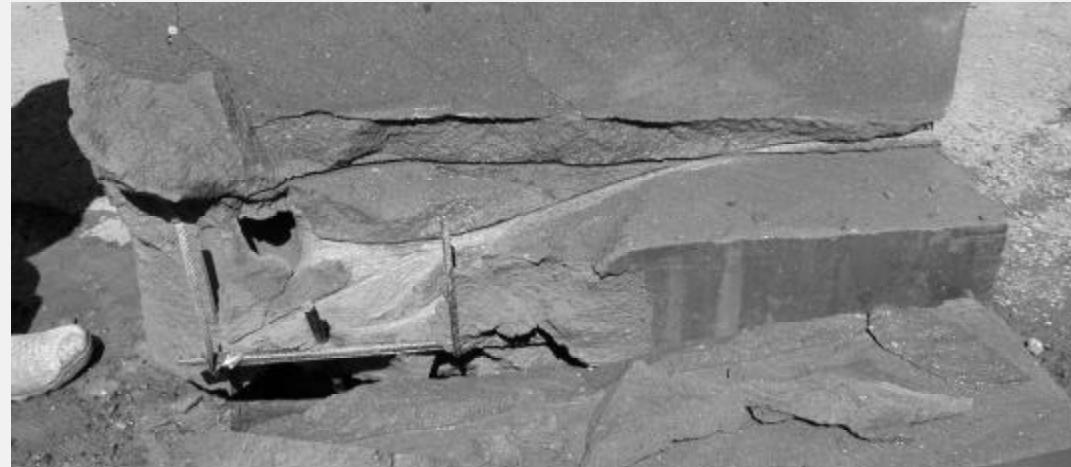
Nammo
NORDIC AMMUNITION COMPANY



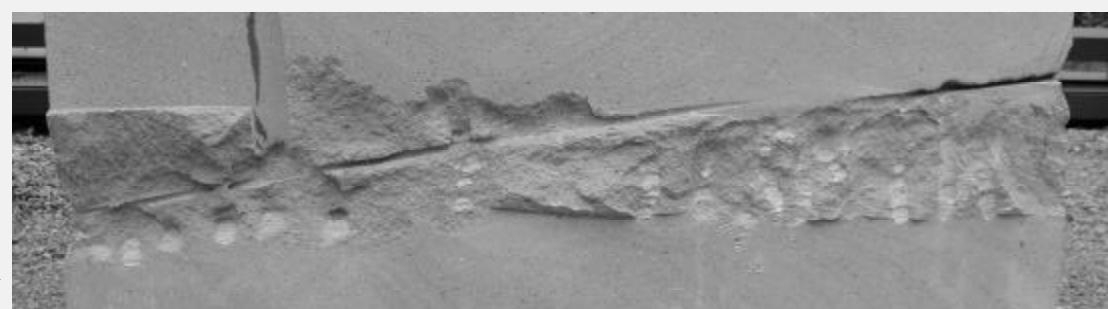
asslid

Urban/Bunker Targets (600x600x1200)

Projectile
Break-Up

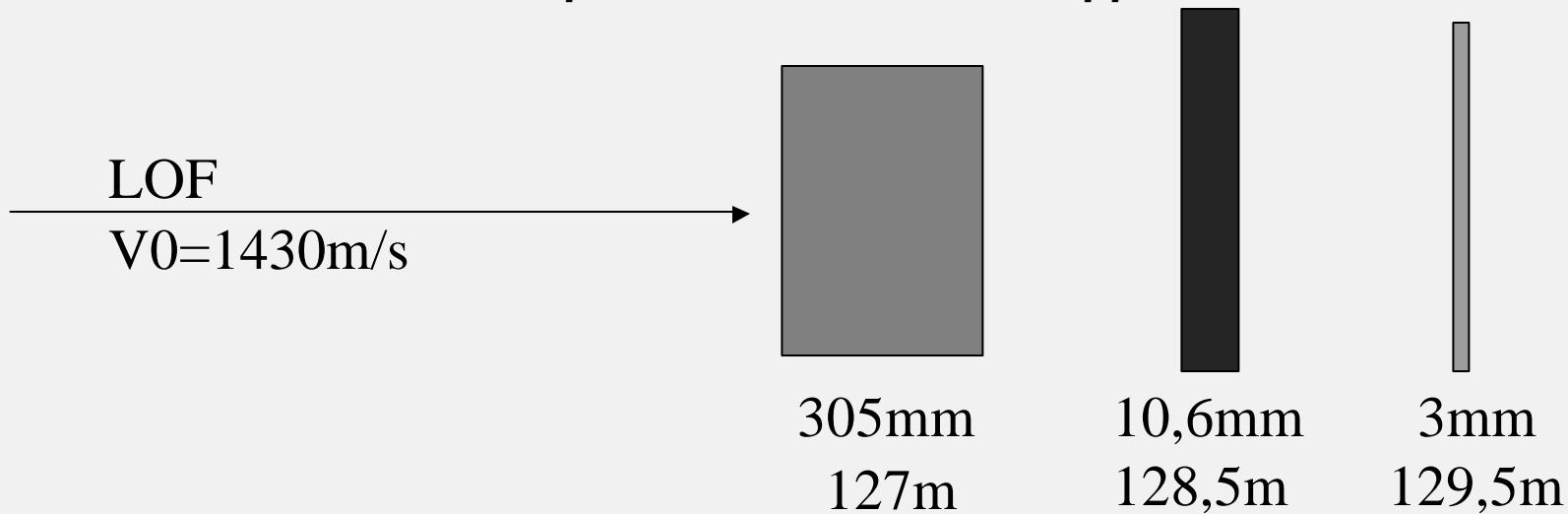


Full
Penetration
(+15mm RHA)



30x173 APFSDS-T NM 225

- **5 rds burst from the Bushmaster II mod 1 (chromed 0-7,5 deg)**
- **Reinforced Concrete block 1500x1500x300(5ftx5ftx1ft)**
- **Strength C55; Double matrix 12,7mm re-bar; Grain<8mm**
- **10,6mm ARMOX MIL-A-12560 with hardness HB 367**
- **3mm Steel witness plate of size 2000x2000 approx.**



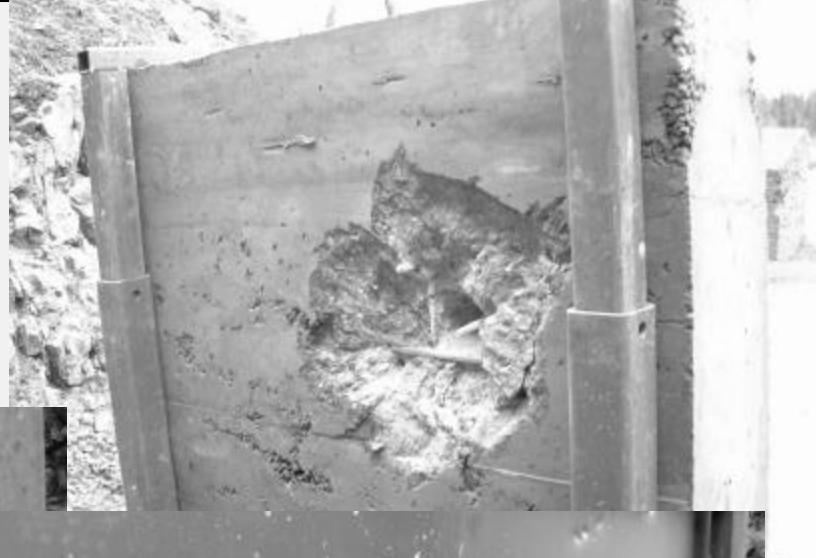
Urban Combo Target Set-Up



M E D I U M C A L I B R E

Symposium Straume/Hasslid

Nammo
NORDIC AMMUNITION COMPANY



MEDIUM CALIBRE

Volume/Hasslid

Expanding the Traditional Effectiveness Window

MP-T/SD \Rightarrow ABMP-T

Air Burst Multi Purpose

3 Modus

Programmable time based fuze

-Detonation

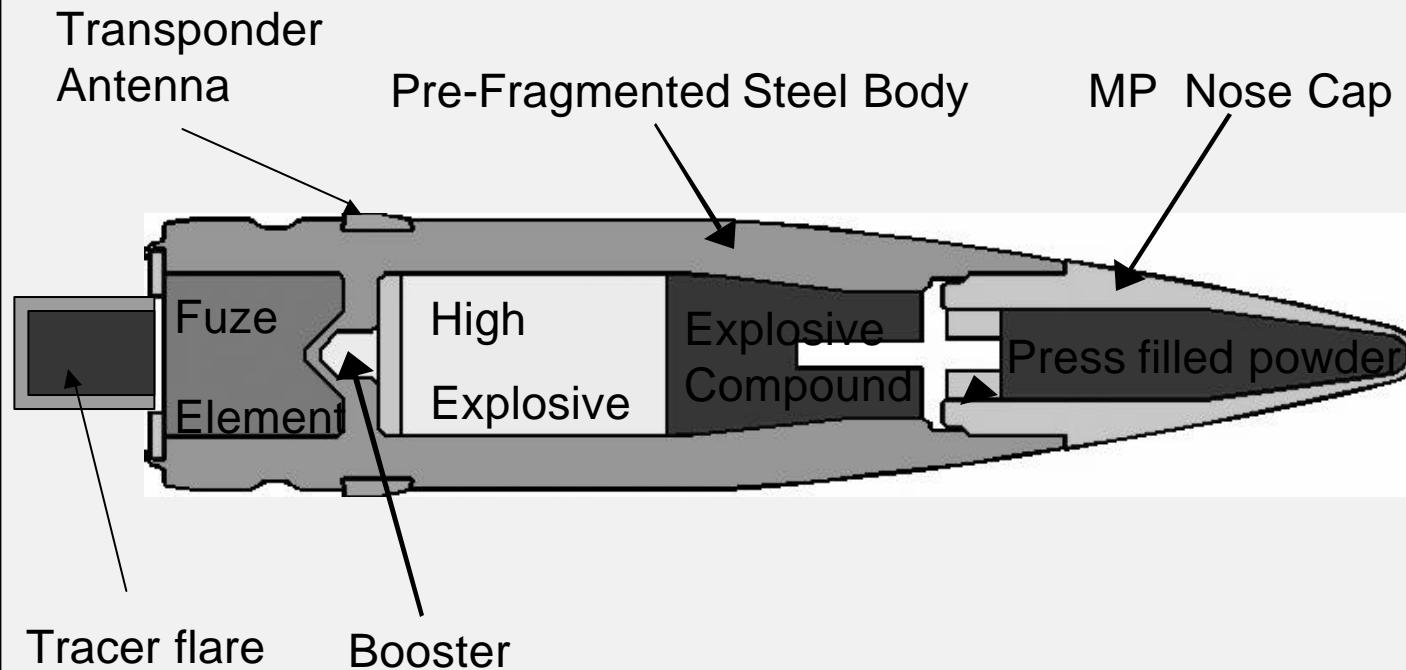
Point Detonation

-Detonation

Multi Purpose

-Deflagration

ABMP-T Ammunition Concept



SUMMARY

- **Qualified ammunition defeats current targets as defined in performance spec.**
- **Effectiveness window expanded:**
 - Urban Targets
 - Submerged Targets
 - Targets defeated at longer stand-off
- **> Reduced System Cost and Product LCC**

Mr. Short Rod & Mr. Long Rod at New Frontiers



MEDIUM CALIBRE

The Parrot Rifle, Fredericksburg, VA

Symposium Straume/Hasslid